easily be introduced into our Zoological Gardens. Another interesting and little-known bird is the *Fulica cristata*, which is abundant at Algiers, and occurs occasionally in Sicily, Sardinia and Provence.

We may here notice a new species of *Picus* described by M. Malherbe in the 'Mémoires de l'Académie de Metz,' 1843, and of which he proposes to give a coloured figure in the general history of the *Picidæ*, which he informs us he is now engaged upon. This species, which he names *Picus numidus*, takes the place of *Picus major* in Northern Africa, and is common in the forests of Bona. The size is less than that of *P. major*, but the beak is generally longer. The plumage much resembles that of the latter species, but the white patch on the side of the neck and the white spots on the wings are smaller, and the black stripe on each side of the throat meets in front on the breast, where it is succeeded by a band of crimson.

We shall wait with interest for further contributions to zoology from M. Malherbe, who has already done much to advance science by the above publications.

Über die Verwandlung der Infusorien in niedere Algenformen. Von Dr. F. T. Kützing. Nordhausen, 4to, 1844.

It has long been a favourite notion with German botanists, that under varying momenta of air, heat, moisture, &c., the same germ is capable of producing widely different objects. This has been worked out with more or less ability by a host of writers, and though in many cases it has been attempted to support it by the very loosest observations and reasonings, this reproach cannot justly be given to all its supporters, for there are many, not only from their literary reputation but from the merit of the observations themselves, however differently we may be inclined to interpret them, who at least require respectful attention. There is no doubt that the conclusions are implicitly believed by themselves to be just and logical, with a deep persuasion that they are by no means inconsistent with fit and humble views as to the nature of the great Creator of the Universe, and it is clear that they have the greatest difficulty in imagining how they can possibly make a different impression upon others. To such an extent has this notion been carried, that we are informed in the number of 'Botanische Zeitung' for 19th July 1844, that Reissek of Vienna has succeeded in making pollen grains germinate in the parenchym of leaves and stems, not merely of the mother-plant, but also on those of others belonging to different natural orders; that they produced fungi laden with spores, and that these spores when placed in water produced confervoid plants filled with chlorophylle, and copulating with one another; that he observed also the metamorphosis of the pollen cells into animals of Ehrenberg's genus *Astasia*, and that the contents of the pollen cells also produced plants and animals. From the smaller particles were originated *Bacteriæ*, Vibrios and Confervas; from the larger, green globular Monads.

He professes also to have observed the metamorphosis of the chlorophylle of phænogamous plants into Confervæ and Infusoria. From

grains of the same species were derived, according to the varying momenta, *Monas Termo*, *M. vivipara*, *Astasiæ*, or *Colpoda Cucullus*, &c.

Kützing's observations indeed do not profess to go quite so far as this, but they are scarcely less extraordinary. His views are detailed at very great length, with numerous illustrations, in his prize essay, entitled 'Die Umwandlung niederer Algen-Formen in höhere so wie auch in Gattungen ganz verschiedener Familien und Klassen höherer Cryptogamen mit zelligem Bau,' published at Haarlem in 1841. The object of this was to show, as the title expresses, that the lower forms of Algæ are capable of being changed into more highly organized species, or even into species belonging to different families and classes of the higher cellular plants. And in the present treatise he extends his observations to Infusoria, believing that he has observed their transmutation into Algæ. In both cases the subject has been worked out with such pains, and so many valuable observations are intermixed with his peculiar views, that the treatises are worth reading, not merely with a view of ascertaining the exact notions entertained upon such subjects, but for the sake of the pearls which may be picked up by the way.

The observations do not admit of abridgement, one depending so much upon another, that it is almost impossible to form any fair judgement without examining the whole; nor would they be well understood without the aid of the figures, which are executed with the usual skill of the author.

We shall therefore content ourselves with referring those who are desirous of the latest information on the subject to the memoirs themselves, after making two or three remarks on the matter generally. As far then as we understand what we have read on the subject, we cannot help first remarking that the observations cannot be considered conclusive, apart from all prejudice either way, till a certain number of bodies ascertained to be precisely of the same nature be isolated, and the changes of these observed with every possible precaution to avoid error. At present it seems to us that there is not by any means sufficient proof that the objects in question really arise from germs of the same nature.

The second remark we would make is, that there appears too often in treatises of this description to be great indistinctness as to the notion of what a species really is. We know that in the course of development higher bodies go through a vast variety of phases which resemble very closely true substantial species which have arrived at their full development; but we are not therefore to suppose, that in passing through their phases the production has really consisted of such a number of real species. In the Agardhian sense this may be true enough, for when he pronounces the vessels and cells of phænogamous plants to be Algæ, his meaning appears to be, however strongly he expresses himself, merely that they are representatives of Algæ, and resemble them in structure.

We would remark also, that the real difficulty of the case does not depend on the question as to the difference of animal and vegetable life. These evidently in certain parts of the creation are so intimately

combined, that it is quite impossible to say where the one ceases and the other begins, and there is really no reason why we should be incredulous as to the possibility of the same object being at one time endowed more especially with animal and at another with vegetable life. Late observations on the reproductive bodies of some Algæ show that their motion is produced by vibratile cilia exactly in the same way as in certain animals. But it is exceedingly difficult to imagine the transformation of one real species into another. The same species may assume a vast variety of forms according to varying circumstances, and it is highly instructive to observe these changes; but that the same spore should under different circumstances be capable of producing beings of an almost entirely different nature, each capable of reproducing its species, is a matter which ought not to be admitted generally without the strictest proof. Observations made with care on isolated individuals, and not on a common mass, which can scarcely be otherwise than more or less heterogeneous, could not fail to be instructive, and might lead to results, which, if they did not confirm the views so commonly entertained in Germany, would have an influence on science which it is difficult at present to appreciate.

Annales des Sciences Naturelles.

June 1844.—*Zoology.*—Conclusion of M. Duvernoy's memoir on the *Pœcilia surinamensis* (with a plate).—Mr. Darwin on *Sagitta* (translated from the 'Annals of Nat. Hist.' no. 81).—M. Leon Dufour on the metamorphoses and anatomy of *Piophila petasionis* (with a plate).—A notice of the life of M. Geoffroy St. Hilaire.

Botany.—Boissier, Plantæ Aucherianæ, sp. 140 to 187 (all *Umbelliferæ*).—Miquel on *Beyeria*, a new genus of *Euphorbiaceæ*. Char. (*Flores* dioici apetali. *Calyx* 5-partitus. *Antheræ* extrorsæ. *Ovarii* loculi uniovulati. *Stigma* pileiforme integerrimum sessile.) Sp. typ. *Beyeria viscosa* (figured) from Rottenest Island, on the S.W. coast of New Holland.—M. Theod. Hartig, Contributions to the history of the development of plants (a translation from the German), in part an abstract.—Note on the organization and mode of fructification of *Onygena*, by MM. L.-R. and C. Tulasne (with a plate; all the drawings of these botanists are highly instructive and very beautiful).—H. Mohl on the growth in thickness of Dicotyledonous trees (a translation from the German).—Lemaire on *Delairea*, a new genus of *Synantheræ*. Sp. typ. *Delairea odorata*, probably from Mexico?

July 1844.—*Zoology.*—An elaborate memoir by M. Joly on the habits, metamorphosis, anatomy and embryogeny of the *Colaspis atra*, a little coleopterous insect which infests the lucern in the south of France: with plates.—M. Letellier on the action of sugar in the alimentation of Granivoræ (from the 'Annales de Chimie'). —A translation from the German of M. C, Vogt's observations on the embryology of Batrachiens.—M. Gervais on the Myriapoda.

Botany.—Unger on the *Achlya prolifera* (translated from the 'Linnæa').—M. Ad. Brongniart on the structure of the pistil and the origin of ovules (see 'Annals,' no. 87).—Fourth series of notes (in

reply to M. Mirbel) on the anatomy and physiology of Monocotyledons, by M. Gaudichaud.—Boissier, Plantæ Aucherianæ, sp. 188 to 240 (*Umbelliferæ*).

August 1844.—*Zoology*.—Continuation of M. Gervais's memoir on the Myriapoda. In this part a new genus, *Scolopendrella*, is constituted for the reception of a little myriapod allied to *Geophilus*, from the neighbourhood of Paris.—M. Quatrefages on the nervous system of Annelides: an elaborate paper with two fine plates.—M. Bischoff on the ovum of man and the mammalia.

Botany.—Boissier, Plantæ Aucherianæ, sp. 241 to 301 (*Umbelliferæ*).—M. Dutrochet's report on the memoir of M. Payer on the tendency of roots to avoid the light.—M. Raoul on new plants from New Zealand. Three new genera are described in this paper, *Ileodictyon*, a fungus; *Pukateria*, allied to *Cornus*; and *Tetrapathea*, allied to *Passiflora*, but diœcious.—M. Gaudichaud on Monocotyledons, continued.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

February 27, 1844.—Professor Owen in the Chair.

"Description of new species of Shells, by Mr. Hinds."

Six species of *Triton*, from the collection of Sir Edward Belcher, C.B.

TRITON, Montfort.

1. TRITON VESTITUS. *Tr. testâ ovatâ solidâ, fuscâ; anfractibus rotundatis, transversim striatis, lineis longitudinalibus decussantibus præcipuè spiræ nodulosis, ultimo albo fasciato; aperturâ elongatè ovali; labro incrassato, intùs dentibus geminis albis, undique purpurascentibus; columellâ purpurascente vel nigrâ, plicis albis varicosâ; fauce albâ; epidermide valdè lamellosâ, pilis nigris numerosis indutâ.* Axis 27 lin.

Hab. Realejo, gulf of Nicoya, and bay of Honda, west coast of America.

2. TRITON BRACTEATUS. *Tr. testâ ovatâ, elongatâ, longitrorsum costatâ, transversim striatâ, maculis parvis nigris seriatim dispositis ornatâ; spirâ aperturam superante; aperturâ parvâ, albâ, denticulatâ; canali breviusculo.* Axis 8 lin.

Hab. Marquesas; New Ireland; Straits of Malacca: on the shores and in seventeen fathoms, mud.

3. TRITON TRUNCATUS. *Tr. testâ solidâ, fulvâ, fusco nebulosâ, truncatâ, longitrorsum costatâ, striis decussantibus; costis rotundatis, confertis, anfractu ultimo pallidè fasciato; aperturâ albâ, denticulatâ; canali breviusculo.* Axis 6 lin.

Hab. New Ireland; among the coarse sand of the shore.

4. TRITON ANTIQUATUS. *Tr. testâ elongatâ, turritâ, subcylindraceâ, lineis decussantibus textili, costis propè suturam evanidis; spirâ aperturam duplò vel triplò superante; apice eroso; aperturâ parvâ,*